



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2014-0619; Directorate Identifier 2014-NM-029-AD; Amendment 39-18124; AD 2015-06-06]**

**RIN 2120-AA64**

**Airworthiness Directives; BAE Systems (Operations) Limited Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), Department of Transportation (DOT).

**ACTION:** Final rule.

**SUMMARY:** We are adopting a new airworthiness directive (AD) for all BAE Systems (Operations) Limited Model 4101 airplanes. This AD was prompted by a report of the failure, due to overheat, of a bracket on which the earth post (EP) for the generator and propeller de-ice systems is located. This AD requires an inspection of the affected EPs and attachment structure for damage, an inspection of the earth cables of the generator and propeller de-ice system for signs of overheating and arcing damage, a torque check of the affected EP stiff nuts, an electrical high current bonding check of the bracket, and corrective actions if necessary. We are issuing this AD to detect and correct an overheat failure of the EPs for the generator and propeller de-ice system, and possible degradation of the wing front spar cap and/or web, which could affect the structural integrity of the

wing.

**DATES:** This AD becomes effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** You may examine the AD docket on the Internet at <http://www.regulations.gov/#!docketDetail;D=FAA-2014-0619> or in person at the Docket Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC.

For service information identified in this AD, contact BAE Systems (Operations) Limited, Customer Information Department, Prestwick International Airport, Ayrshire, KA9 2RW, Scotland, United Kingdom; telephone +44 1292 675207; fax +44 1292 675704; email [RApublications@baesystems.com](mailto:RApublications@baesystems.com); Internet <http://www.baesystems.com/Businesses/RegionalAircraft/index.htm>. You may view this referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221. It is also available on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA 2014-0619.

**FOR FURTHER INFORMATION CONTACT:** Todd Thompson, Aerospace Engineer, International Branch, ANM-116, Transport Airplane Directorate, FAA,

1601 Lind Avenue SW., Renton, WA 98057-3356; telephone 425-227-1175;  
fax 425-227-1149.

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to all BAE Systems (Operations) Limited Model 4101 airplanes. The NPRM published in the Federal Register on September 3, 2014 (79 FR 52270). The NPRM was prompted by a report of the failure, due to overheat, of a bracket on which the EP for the generator and propeller de-ice systems is located. The NPRM proposed to require an inspection of the affected EPs and attachment structure for damage, an inspection of the earth cables of the generator and propeller de-ice system for signs of overheating and arcing damage, a torque check of the affected EP stiff nuts, an electrical high current bonding check of the bracket, and corrective actions if necessary. We are issuing this AD to detect and correct an overheat failure of the EPs for the generator and propeller de-ice system, and possible degradation of the wing front spar cap and/or web, which could affect the structural integrity of the wing.

The European Aviation Safety Agency (EASA), which is the Technical Agent for the Member States of the European Union, has issued EASA Airworthiness Directive 2014-0006, dated January 7, 2014 (referred to after this as the Mandatory Continuing Airworthiness Information, or “the MCAI”), to correct an unsafe condition. The MCAI states:

An occurrence was reported involving a Jetstream 4100 aeroplane, where a bracket, on which the earth post for the generator and propeller de-ice systems is located, failed due to overheating. Although the earth post and cables were not damaged, the mounting bracket and underlying structure were damaged to the extent that repair of the wing front spar web was necessary. Furthermore, the aft engine cross support rod, which is attached to the same bracket, was found damaged, as a result of excessive current load, and required replacement. The subsequent investigation determined that, due to the damage tolerance of the aft engine cross rod support, the rod does not present an airworthiness issue. However, as a consequence of overheating failure of the earth post, degradation of the wing front spar cap and/or web could affect the structural integrity of the wing.

This condition, if not detected and corrected, could reduce the capacity of the wing to support loads, possibly resulting in wing structure failure and consequent loss of the aeroplane.

To address this potential unsafe condition, BAE Systems (Operations) Ltd issued [Inspection] Service Bulletin (SB) J41-24-043 [Revision 2, dated August 21, 2013] to provide inspection instructions.

For the reasons described above, this [EASA] AD requires a one-time visual inspection of the affected earth posts, an electrical high current bonding check of the bracket and, if discrepancies are detected, accomplishment of applicable corrective action(s).

The required actions include a general visual inspection of the affected EPs and attachment structure for damage; a general visual inspection of the earth cables of the generator and propeller de-ice system for arcing damage and signs of overheating of the cable insulation and terminal tags; a torque check of the EP2 and EP4 stiff nuts; an electrical high current bonding check of the bracket; and corrective actions if necessary. Corrective actions include repair of damaged structure, replacement of damaged cables,

cleaning of all applicable surfaces to achieve the necessary resistance value, and correction of the torque load of EP stiff nuts.

You may examine the MCAI in the AD docket on the Internet at <http://www.regulations.gov/#!documentDetail;D=FAA-2014-0619-0002>.

### **Comments**

We gave the public the opportunity to participate in developing this AD. We received no comments on the NPRM (79 FR 52270, September 3, 2014) or on the determination of the cost to the public.

### **Changes Made to This AD**

BAE Systems (Operations) Limited has issued Inspection Service Bulletin J41-24-043, Revision 3, dated June 16, 2014. This service bulletin states that “this revision does not require rework of the modification(s) embodied by earlier revision of this service bulletin.” We have revised paragraphs (g) through (k) of this AD to reference this service information. We have revised paragraph (l) of this AD to give credit for actions done prior to the effective date of this AD using BAE Systems (Operations) Limited Inspection Service Bulletin J41-24-043, Revision 2, dated August 21, 2013.

### **Conclusion**

We reviewed the relevant data, and determined that air safety and the public interest require adopting this AD with the changes described previously and minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM (79 FR 52270, September 3, 2014) for correcting the unsafe condition; and

- Do not add any additional burden upon the public than was already proposed in the NPRM (79 FR 52270, September 3, 2014).

We also determined that these changes will not increase the economic burden on any operator or increase the scope of this AD.

### **Related Service Information under 1 CFR part 51**

We reviewed BAE Systems (Operations) Limited Service Bulletin J41-24-043, Revision 3, dated June 16, 2014. The service information describes procedures for an inspection of the earth post EP2 (left) and earth post EP4 (right) on the structure for the left and right power plants. This service information is reasonably available; see ADDRESSES for ways to access this service information.

### **Costs of Compliance**

We estimate that this AD affects 4 airplanes of U.S. registry.

We also estimate that it would take about 4 work-hours per product to comply with the basic requirements of this AD. The average labor rate is \$85 per work-hour. Based on these figures, we estimate the cost of this proposed AD on U.S. operators to be \$1,360, or \$340 per product.

We have received no definitive data that would enable us to provide cost estimates for the on-condition actions specified in this AD.

### **Authority for this Rulemaking**

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator.

“Subtitle VII: Aviation Programs,” describes in more detail the scope of the Agency’s authority.

We are issuing this rulemaking under the authority described in “Subtitle VII, Part A, Subpart III, Section 44701: General requirements.” Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

### **Regulatory Findings**

We determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

1. Is not a “significant regulatory action” under Executive Order 12866;
2. Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979);
3. Will not affect intrastate aviation in Alaska; and
4. Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

## **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov/#!docketDetail;D=FAA-2014-0619>; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Operations office (telephone 800-647-5527) is in the ADDRESSES section.

## **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

## **Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

## **PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

### **§ 39.13 [Amended]**

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

**2015-06-06 BAE Systems (Operations) Limited** : Amendment 39-18124. Docket No. FAA-2014-0619; Directorate Identifier 2014-NM-029-AD.

**(a) Effective Date**

This AD becomes effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to BAE Systems (Operations) Limited Model 4101 airplanes, certificated in any category, all serial numbers.

**(d) Subject**

Air Transport Association (ATA) of America Code 24, Electrical Power.

**(e) Reason**

This AD was prompted by a report of the failure, due to overheat, of a bracket on which the earth post (EP) for the generator and propeller de-ice systems is located. We are issuing this AD to detect and correct an overheat failure of the EPs for the generator and propeller de-ice system and possible degradation of the wing front spar cap and/or web, which could affect the structural integrity of the wing.

**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Inspection of the Earth Posts and Attachment Structure and Corrective Action**

Within 6 months after the effective date of this AD: Do a general visual inspection on both engines of the structure around EP2 and EP4; the brackets on which the EPs are mounted; the attachment of the nacelle horizontal support for damage, and lateral movement of the EPs; in accordance with the Accomplishment Instructions of

BAE Systems (Operations) Limited Inspection Service Bulletin J41-24-043, Revision 3, dated June 16, 2014. If any lateral movement of the EP or any other damage is detected, before further flight, repair using a method approved by the Manager, International Branch, ANM-116, Transport Airplane Directorate, FAA; or the European Aviation Safety Agency (EASA); or BAE Systems (Operations) Limited's EASA Design Organization Approval (DOA).

**(h) Inspection of the Earth Cables and Corrective Action**

Within 6 months after the effective date of this AD: Do a general visual inspection of the earth cables of the generator and propeller de-ice system for arcing damage and signs that the cable insulation or terminal tags have been overheated, and do all applicable corrective actions; in accordance with the Accomplishment Instructions of BAE Systems (Operations) Limited Inspection Service Bulletin J41-24-043, Revision 3, dated June 16, 2014. Do all applicable corrective actions before further flight.

**(i) Torque Check of the Earth Post Stiff Nuts**

Within 6 months after the effective date of this AD: Do a torque check of the EP2 and EP4 stiff nuts, and adjust the torque load as applicable, in accordance with the Accomplishment Instructions of BAE Systems (Operations) Limited Inspection Service Bulletin J41-24-043, Revision 3, dated June 16, 2014.

**(j) Resistance Measurement of the EP2 and EP4 Earth Bolts**

Within 6 months after the effective date of this AD: Measure the resistance of the EP2 and EP4 earth bolts using a high-current millivolts-drop test, and do all applicable corrective actions, in accordance with the Accomplishment Instructions of BAE Systems

(Operations) Limited Inspection Service Bulletin J41-24-043, Revision 3, dated June 16, 2014. Do all applicable corrective actions before further flight.

**(k) No Reporting Required**

Although BAE Systems (Operations) Limited Inspection Service Bulletin J41-24-043, Revision 3, dated June 16, 2014, specifies to submit information to the manufacturer, this AD does not require that this information be submitted.

**(l) Credit for Previous Actions**

This paragraph provides credit for actions required by paragraphs (g), (h), (i), and (j) of this AD, if those actions were performed before the effective date of this AD using a service bulletin specified in paragraph (l)(1), (l)(2), or (l)(3) of this AD, which are not incorporated by reference in this AD..

(1) BAE Systems (Operations) Limited Inspection Service Bulletin J41-24-043, dated September 27, 2011.

(2) BAE Systems (Operations) Limited Inspection Service Bulletin J41-24-043, Revision 1, dated January 16, 2012.

(3) BAE Systems (Operations) Limited Inspection Service Bulletin J41-24-043, Revision 2, dated August 21, 2013.

**(m) Other FAA AD Provisions**

The following provisions also apply to this AD:

**(1) Alternative Methods of Compliance (AMOCs):** The Manager, International Branch, ANM-116, Transport Airplane Directorate, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In

accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the International Branch, send it to ATTN: Todd Thompson, Aerospace Engineer, International Branch, ANM-116, Transport Airplane Directorate, FAA, 1601 Lind Avenue SW., Renton, WA 98057-3356; telephone 425-227-1175; fax 425-227-1149. Information may be emailed to: 9-ANM-116-AMOC-REQUESTS@faa.gov. Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office. The AMOC approval letter must specifically reference this AD.

**(2) Contacting the Manufacturer:** For any requirement in this AD to obtain corrective actions from a manufacturer, the action must be accomplished using a method approved by the Manager, International Branch, ANM-116, Transport Airplane Directorate, FAA; or the European Aviation Safety Agency (EASA); or BAE Systems (Operations) Limited's EASA Design Organization Approval (DOA). If approved by the DOA, the approval must include the DOA-authorized signature.

**(n) Related Information**

(1) Refer to Mandatory Continuing Airworthiness Information (MCAI) European Aviation Safety Agency Airworthiness Directive 2014-0006, dated January 7, 2014, for related information. This MCAI may be found in the AD docket on the Internet at <http://www.regulations.gov/#!documentDetail;D=FAA-2014-0619-0002>.

(2) Service information identified in this AD that is not incorporated by reference is available at the addresses specified in paragraphs (o)(3) and (o)(4) of this AD.

**(o) Material Incorporated by Reference**

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless this AD specifies otherwise.

(i) BAE Systems (Operations) Limited Inspection Service Bulletin J41-24-043, Revision 3, dated June 16, 2014.

(ii) Reserved.

(3) For service information identified in this AD, contact BAE Systems (Operations) Limited, Customer Information Department, Prestwick International Airport, Ayrshire, KA9 2RW, Scotland, United Kingdom; telephone +44 1292 675207; fax +44 1292 675704; email [RAPublications@baesystems.com](mailto:RAPublications@baesystems.com); Internet <http://www.baesystems.com/Businesses/RegionalAircraft/index.htm>.

(4) You may view this service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to:  
<http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Renton, Washington, on March 12, 2015.

Jeffrey E. Duven,  
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Aircraft Certification Service.

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